# LESSON 2: THE FIRST LIFE-SAVING STEPS

*automatic external defibrillators (AEDs)*
*cardiac arrest*
*heart attack*
*heimlich maneuver*
*rescue breathing*
*stroke*

## INTRODUCTION

In emergency situations, the people involved may find it difficult to remain calm and think clearly. In the midst of this confusion, one simple trick you can use to remind yourself of the first and most important problems to check for and steps to take are the letters A-B-C.

⇒ **A** stands for airway. Is the victim's airway blocked? If so, clear the airway.
⇒ **B** stands for breathing. Is the victim breathing? If not, restore breathing.
⇒ **C** stands for circulation. Is the victim's heart beating? If not, restore the heartbeat.

## CLEARING THE AIRWAY OF A CONSCIOUS VICTIM

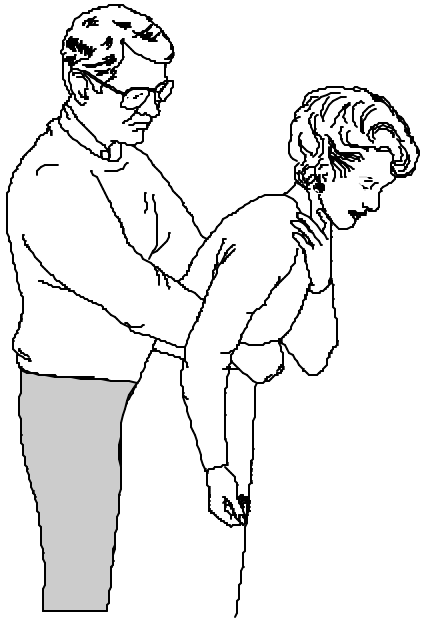
Choking occurs when a person inhales something into the airway leading to the lungs, blocking the airway off and preventing breathing. In many choking cases, people inhale particles of food while eating. In an accident, injured people may choke on dirt, broken teeth, or dentures.

A person whose airway is completely blocked off cannot make any sound, because no air is getting to the vocal cords. If a person can speak or cough, some air is getting through to the vocal cords and lungs, and you should let the person try to clear the airway on his or her own. If the person can make no sound and indicates choking by grabbing the throat, the best method to clear the person's airway is the **Heimlich maneuver**.

1. Stand behind the victim and wrap your arms around the victim's waist.

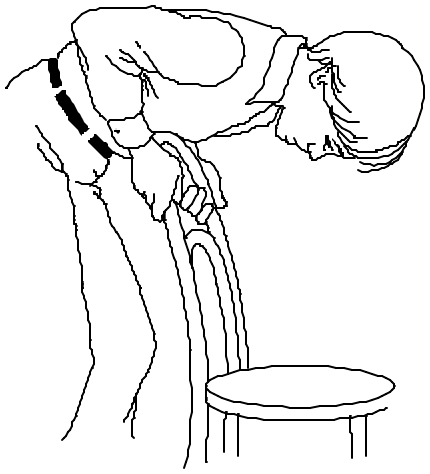
2. Make a fist with one hand and place the thumb side of the fist against the victim's abdomen slightly above the navel and well below the breastbone. Grasp the fist with the other hand.

3. Give 6 to 10 quick backward and upward thrusts; repeat this until the airway is clear.



For an exceptionally overweight person or pregnant woman, use the same procedure, except place the fist in the middle of the breastbone.

If you are the victim of an airway obstruction and no one is around to help, lean forward over a railing, sink, or the back of a chair and thrust yourself down until you dislodge the obstruction.



## CLEARING THE AIRWAY OF AN UNCONSCIOUS VICTIM

If a person is unconscious and you know that individual has an obstructed airway, perform the following maneuver with the victim lying on his or her back:

1. Kneel astride the victim's thighs. Place the heel of one hand against the victim's abdomen, slightly above the navel, but well below the victim's breastbone, with your fingers pointing towards the victim's head.

2. Place your other hand on top of your first hand and press into the abdomen with a quick forward and upward thrust. Repeat this 6 to 10 times.

3. Open the victim's mouth and sweep out any foreign matter using a hooked finger. Be careful not to push anything down the throat.

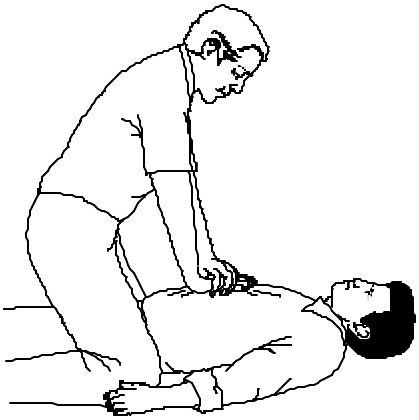
For an obese individual or a woman in the advanced stages of pregnancy, use the following procedure:

1. Kneel to the side of the victim's body. Locate the lower edge of the victim's ribs, and run the fingers up along the rib cage to the notch where the ribs meet the breastbone.

2. Place the heel of the hand two finger widths above the notch, and place the other hand over the first, interlocking the fingers.

3. Position your shoulders over your hands, and with the elbows locked, press down 1 1/2 to 2 inches, 6 to 10 times.

4. Open the victim's mouth and sweep out any foreign matter using a hooked finger. Be careful not to push anything down the throat.



## RESTORING THE BREATHING

If you discover a victim who is not breathing, it is necessary to start breathing for the victim by forcing oxygen into his or her lungs as soon as possible. This process, called **rescue breathing** or mouth-to-mouth resuscitation, can prevent brain damage and death. By applying this first aid step it will most likely start the victim breathing independently; but if not, continue it until you are replaced by a qualified person or medical help arrives. When you are giving mouth-to-mouth resuscitation to a victim, you are a life-support system!

The following steps describe how to give mouth-to-mouth resuscitation to adults.

Procedures that are different for infants and small children are italicized.

1. Roll the victim gently over if he or she is not already facing up. Open the mouth and check to see if it is clear. Using a hooked finger, sweep out anything you find in the mouth, being careful not to push anything down the throat.

2. Tilt the victim's head back sharply by pressing down on the forehead and lifting on the jaw. This straightens out the passageway to the victim's lungs. *For infants and small children, do not tilt the head back. Instead, place a finger under the chin and lift it slightly.*

3. Keeping the victim's head tilted sharply back, pinch the nose closed, cover the victim's mouth completely with your mouth, and give the victim two full breaths. *For infants and small children, do not pinch the nose closed. Instead, cover both the mouth and nose with your mouth and give small, slow, gentle breaths.* Each breath should last 1 to 1 1/2 seconds. Pause between breaths to let the air come out of the victim and to breathe in yourself. If the victim's chest does not rise when you breathe into his or her lungs, reposition the head slightly farther back and repeat the breaths. If the victim's chest still does not rise, perform abdominal thrusts to clear the airway as described in the previous section, "Clearing the Airway of an Unconscious Victim," then repeat the breaths.

4. After the two breaths, listen and feel for breathing by placing your cheek close to the victim's mouth. At the same time, check the victim's pulse by placing two fingers in the groove of the neck next to the Adam's apple. This is the location of the carotid artery, which normally produces a strong pulse.

5. If there is no pulse, start CPR immediately as described in the next section.

6. If there is a pulse but no breathing, continue mouth-to-mouth resuscitation at the rate of one breath every 5 seconds or 12 times a minute. *For infants and small children, give one slow breath every 3 seconds.*

7. If the victim starts to breathe, stop mouth-to-mouth resuscitation and let the victim breathe on his or her own. Check for other injuries, treat as required, and observe the victim closely until medical help arrives.

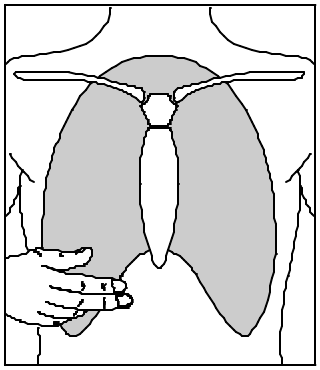
## CARDIOPULMONARY RESUSCITATION (CPR)

As in mouth-to-mouth resuscitation, when you perform CPR, you are a life-support system for the victim. CPR is a first aid procedure performed to restore breathing and heartbeat. It is a combination of mouth-to-mouth resuscitation and a procedure known as closed chest heart massage. Mouth-to-mouth resuscitation supplies oxygen to the lungs, while the closed chest heart massage manually pumps blood through the victim's body, circulating it to the heart and brain. These actions help keep the heart and brain alive until the heartbeat is restored or medical help arrives.

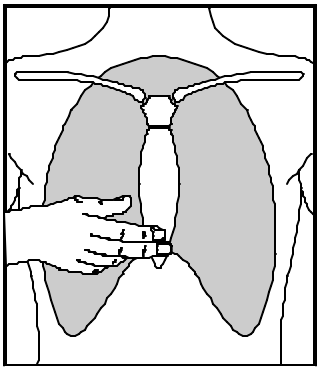
CPR can be performed by a single rescuer or by more than one rescuer, since CPR can be tiring and is easier if two rescuers are available. The CPR procedures discussed in this lesson are for a single rescuer. Before beginning CPR, you should turn the victim face up, clear the airway, give two full breaths as described in mouth-to-mouth resuscitation, and check for a pulse. Only proceed if there is no pulse, and therefore, no heartbeat present.

*PERFORMING CPR ON AN ADULT*

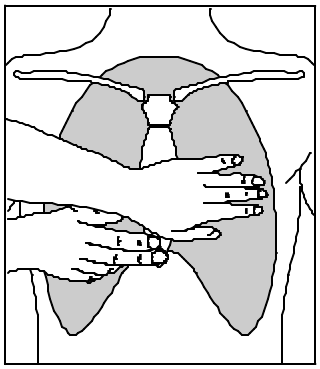
1. With the middle and index fingers of the hand nearest the victim's legs, locate the lower edge of the rib cage on the side of the victim's chest closest to you.



2. Slide your fingers up the edge of the rib cage to the notch at the lower end of the breastbone. Place your middle finger in the notch and the index finger next to it on the lower end of the breastbone.

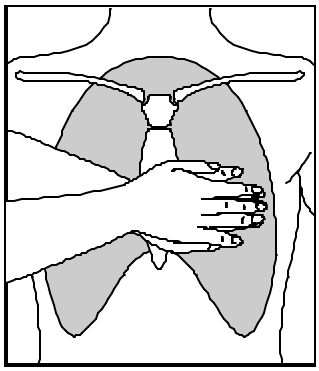


3. Place the heel of the hand nearest the victim's head on the breastbone next to the index finger of the hand used to find the notch.

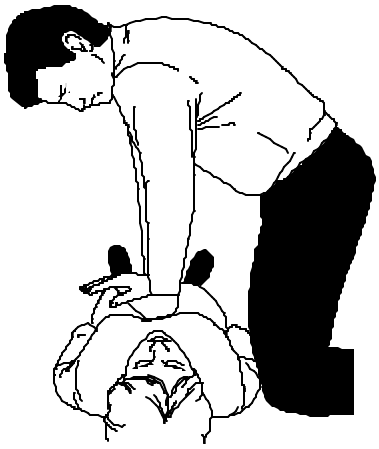


4. Place the heel of the hand used to find the notch directly on top of the heel of the other hand. Only let the heel of your hand touch the victim's chest; keep your fingers lifted off of the victim's chest. If you place your

hands correctly, they will be positioned slightly above the lowest part of the breastbone, known as the xiphoid process. Avoid pressing on the xiphoid process because it breaks easily.



5. Position your shoulders over your hands, with elbows locked and arms straight.



6. Press down on the breastbone 1 1/2 to 2 inches at a very quick, continuous rate. This squeezes the victim's heart against the spine and forces blood through the body.

7. While compressing, count aloud "one and two and three and four..." until you get to 15. It should take you about 10 seconds to do 15 compressions. Push down as you say the number and release the pressure as you say "and." Compress up and down smoothly without removing your hands from the chest.

8. After the fifteenth compression, give the victim two full breaths. Be sure to pinch the nose closed and tilt the victim's head back to straighten the airway. Then return to the chest compression.

9. When you complete four cycles of 15 chest compressions and two breaths, check for a pulse again. If there is no pulse, continue CPR.

*PERFORMING CPR ON AN INFANT*

1. Place your hand closest to the infant's head gently on the infant's forehead and leave it there throughout the procedure.

2. Place the middle and ring fingers of the hand nearest the infant's legs on the infant's breastbone about one finger width below the infant's nipples.

3. Give five compressions with those two fingers at a rapid pace, pushing the chest down about 1/2 to 1 inch.

4. Follow the five compressions with one breath as described in the italicized text in Step 3 of mouth-to-mouth resuscitation. Rapidly repeat the five compressions and one breath twenty times a minute until breathing and heartbeat resume.

*PERFORMING CPR ON A CHILD*

1. As with an adult, find the notched center of the child's ribcage with the hand closest to the child's legs. Measure two finger widths above the notch using the other hand, and then place the heel of the hand used to find the notch on the child's breastbone above the two fingers.

2. Place the hand that you used to measure two finger widths gently on the child's

forehead and leave it there throughout the rest of the procedure.

3. Using the heel of your hand and keeping your fingers off of the child's chest, give five compressions 1 to 1 1/2 inches deep, followed by one breath as described in the italicized text in Step 3 of mouth-to-mouth resuscitation. Repeat this sequence twelve times a minute until breathing and heartbeat resume.

## HEART ATTACKS

A **heart attack** occurs when the blood supply to part of the heart muscle is severely reduced or stopped. That happens when one of the coronary arteries (the arteries that supply blood to the heart muscle) is blocked by an obstruction or a spasm. Common signs and symptoms so of a heart attack include:

- Uncomfortable pressure, fullness, squeezing, or pain in the center of the chest that lasts more than a few minutes or that goes away and comes back.
- Pain spreading to the shoulders, neck, or arms.
- Chest discomfort with lightheadedness, fainting, sweating, nausea, or shortness of breath.

When a person's heart stops beating, the victims is said to be in cardiac arrest. Cardio-pulmonary resuscitations (CPR) can keep the individual alive. If a person has a heart attack, call Emergency Medical Services (EMS). Monitor the ABC's and give CPR as necessary.

## STROKE

A **stroke** occurs when blood vessels that deliver oxygen-rich blood to the brain ruptures or when a blood clot forms and blocks the flow of blood in the brain. Common signs and symptoms of a stroke include:

- Paralysis on one side of the body
- Blurred or decreased vision, pupils of unequal size
- Problems speaking, slurred speech
- Difficulty breathing
- Mental confusion
- Dizziness or loss of balance
- Sudden, severe, or unexplained headache
- Loss of consciousness

If a person has a stroke, call EMS. Lay the victim down on one side and cover with blanket. Monitor the ABC's and give CPR as necessary.

## AUTOMATED EXTERNAL DEFIBRILLATORS (AED)

Recently there has been a breakthrough in how Emergency Medical Technicians (EMTs) treat victims of sudden cardiac arrest. The **Automated External Defibrillator (AED)** is a device that uses a computer chip to analyze the heart rhythm and determines whether a shock is needed. This device allows victims suffering a sudden cardiac arrest a greatly improved chance of survival. Because of the ease of operation, people can be trained in AED use in a few hours and some say the techniques are easier to learn than CPR. Many AEDs offer voice prompts, which provide operators with clear and concise instructions. Most AEDs have only three buttons: On/Off, Analyze, and Shock. Many airlines have installed AEDs on all their planes, and several cities are locating them in areas where there are large concentrations of people, such as malls, arenas, and stadiums.

## CONCLUSION

This lesson presents the correct techniques for dealing with the most life-threatening conditions of an accident victim — loss of breathing and heartbeat. Use the letters A-B-C to remind yourself of the first problems

to check for on an injured person: **A**irway blocked, loss of **B**reathing, and lack of **C**irculation. Perform the Heimlich maneuver to clear a victim's airway, mouth-to-mouth resuscitation to restore breathing, and CPR to restore circulation (heartbeat). For the best and safest results, take a class from a qualified instructor before performing mouth-to-mouth resuscitation and CPR on an injured person.